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Reconnaissance Report

for

Humboldt National Forest
Ely Ranger District

Mount Moriah
Potential Research Natural Area

Report prepared for:

Intermountain Research Station
USDA, Forest Service
324 25th Street
Ogden, Utah 84401

Report prepared by:

Jan Nachlinger
The Nature Conservancy
Nevada Public Lands Program
133 N. Sierra Street, Suite 204
Reno, Nevada 89501

May 1991

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Reconnaissance Report
Summary Page

Area Name: Mount Moriah

National Forest: Humboldt ***Ranger District***: Ely

Quadrangles: Mount Moriah 7.5 minute series

General Location: About 31 km (19 mi) north-northwest of Baker in the northern half of the Snake Range, eastern White Pine County, Nevada.

Size: 1,800 acres ***Physiographic Region***: Great Basin

Major Cells Present:

Subalpine forest: Open stands of *Picea engelmannii* and *Pinus longaeva*;

Subalpine steppe: *Carex elynoides-Festuca idahoensis*;

Alpine talus and scree: *Geum rossii* and *Phlox caespitosa* ssp. *pulvinata*.

Additional Features:

Alpine geomorphic features, such as cirque basins and scree slopes.
Spectacular vistas and other scenic values.
Habitat for *Silene nachlingerae*, a federal category 2 candidate.
Bighorn sheep herd.

Recommendation:

The Mount Moriah area would make a superb contribution to the RNA system because it holds exemplary subalpine and alpine targets in good to excellent condition. I recommend that the INT/R4 RNA Committee formally nominate the Mount Moriah candidate RNA to the Regional Forester, and plan for the completion of an Establishment Record. I further recommend that this reconnaissance report be made available to the Humboldt National Forest to help complete the required environmental assessment.

Prepared by: Jan Nachlinger

Date: 31 May 1991

Mount Moriah
Ely District
Humboldt National Forest

Introduction

The *Regional Guide for the Intermountain Region* states that Research Natural Areas (RNAs) are to be established as part of the national system of RNAs to promote and protect biological diversity (U.S. Department of Agriculture, 1984). The national RNA system will eventually include representative and unique examples of forest, shrubland, grassland, alpine, aquatic, and geologic targets that have special characteristics of scientific interest and importance. A workshop held in 1982 and directed at identifying RNA needs in Nevada and Utah indicated that the Great Basin Province was lacking representation of alpine lands (Van Pelt, 1982). Mount Moriah was identified in the workshop's resulting document as one of several areas of known importance for its alpine ecosystems. Further inquiry about the nature of the Mount Moriah area indicated that subalpine forest and meadow communities, along with its known alpine communities, were also represented.

The purpose of this reconnaissance-level survey was to evaluate the quality of the Mount Moriah area as a potential RNA to represent subalpine and alpine terrestrial communities. Presence of the target communities in sound condition was the essential consideration, but other basic qualifying criteria, such as minimum size (> 300 ac) and relative lack of human-caused disturbances, were evaluated. The quality of the plant communities in the Mount Moriah area was considered in light of other known areas with the same subalpine and alpine communities present to determine whether it was the best choice for representation of the target cells of interest. The most suitable boundary for an RNA was appraised on site primarily by taking ecological needs into consideration, however, management concerns were kept in mind as well.

The Ely Ranger District Office was visited on 23 and 27 July 1990 to meet with staff and discuss land status, uses, and current management of the Mount Moriah area (Paul Demeule, Jeff Jones, Toby Rhue, Rita Suminski, and Wayne Swensen, personal communications). When potential conflicts with a RNA designation for the area surfaced, possible solutions were discussed. The field reconnaissance survey of Mount Moriah was conducted on 25 July by myself.

General Description

The Snake Range is centrally located within the Great Basin and is comprised of two segments of nearly equal size. Mount Moriah, at 3,673 m (12,050 ft) commands the

northern half of the range lying north of Sacramento Pass (McLane, 1978). The range lies within the eastern part of the Great Basin section of the Basin and Range physiographic province (Fenneman, 1931). It is capped by a massive subalpine and alpine area with spectacular views of the surrounding basins and ranges.

The Snake Range is composed of folded and faulted blocks of igneous, metamorphic, and sedimentary rocks with limestone as the dominant rock type. Glaciation during the Pleistocene has contributed to the present day rugged topography of the higher elevations.

The vegetation of Mount Moriah is comprised of subalpine forest and grassland communities, and alpine talus and scree communities. The area is floristically classified within the Calcareous Mountains section of the Great Basin division of the Intermountain region (Cronquist *et al.*, 1972). This section is floristically more similar to the Rocky Mountains region than to other sections of the Great Basin division.

Location and Access

Mount Moriah is in extreme eastern White Pine County about 31 km (19 mi) north-northwest of Baker in the north half of the Snake Range (Maps 1 and 2). The subalpine-alpine area lies about 18.5 km (11.5 mi) northeast of Sacramento Pass located on U.S. Highway 50. The legal description of its location is Townships 16 and 17 North, Range 69 East, unsurveyed sections, Mount Diablo Meridian. The summit of Mount Moriah is latitude 39° 16' 10" North, longitude 114° 12' 15" West. Useful maps for the area include U.S. Forest Service Ely Ranger District (1/2 in/mi scale), U.S. Geological Survey 7.5 minute series Mount Moriah.

Access is made from both the west and east on forest roads and trails, and eventually cross-country travel. A four-wheel-drive vehicle is necessary to reach the westside trailhead. To approach the west side, drive south from Ely on U.S. Highways 6, 50, & 93 about 40 km (25 mi) to Majors. Continue east on U.S. Highways 6 & 50 for about 23.8 km (14.8 mi) to the unimproved road that follows the lower peidmont slopes of Spring Valley on its eastside. This turnoff is approximately 4.8 km (3 mi) west of Sacramento Pass. Turn north and continue up this road about 19 km (11.7 mi). Turn east on Forest Route 469 and drive up the slopes to the Big Canyon trailhead (Photo 1). Take the hike along Forest Trail 078 about 3.2 km (2 mi) to The Table. The summit of Mount Moriah and its surrounding alpine lands is a short, but strenuous, cross-country hike from here.

To approach from the east, continue on U.S. Highways 6 & 50 east from Majors for about 42 km (26 mi) to the Baker intersection. Turn north on the unimproved road heading up Snake Valley on the lower southeast piedmont slopes of the northern Snake

Range. Drive about 17.4 km (10.8 mi) to Forest Route 429 up Hendrys Creek, or 6.5 km (4 mi) further to Forest Route 582 up Hampton Creek. Drive to the roadend and hike west on Forest Trail 078 or 077, respectively. The hike to the east side of The Table is about 13 km (8 mi) up Hendrys Creek and about 9 km (5.5 mi) up Hampton Creek.

Land Status

The area lies completely within lands administered by the Ely Ranger District of the Humboldt National Forest. Mount Moriah lies within the 82,000 ac Mount Moriah Wilderness Area designated by Congress on 5 December 1989. There are no cabins, administrative sites, utility corridors, roads, communication sites or in-holdings within the immediate Mount Moriah area. There is an administrative site with a cabin along the western access road (Forest Route 469). Forest Trail 077/078 crosses through the area of The Table and a summit trail up Mount Moriah is planned.

There are some non-active mining claims just south of the Mount Moriah summit in sections 3, 10, and 15. However, the area is considered to have low potential for energy and mineral development. The status of oil and gas leasing was not researched for this report. No real conflicts with mineral and energy interests are foreseen.

There are two grazing allotments in the Mount Moriah area. To the north is the Ryegrass cattle allotment presently permitted for 200 head from 23 June through 7 October and an additional 150 head from 8 July through 22 October. To the south of the peak is the Silver Creek cattle allotment permitted for 150 head from 16 June through 10 October with a deferred rotation schedule. Apparently, the cattle are typically removed earlier than when the grazing periods stipulate removal. Grazing was quite evident on The Table, but little evidence was observed at higher elevations during the field visit. Forage production is good in the subalpine areas of The Table, but it is low at the higher elevations. There may be a conflict with grazing interests if The Table is included within the RNA boundary as recommended, however, no conflict from grazing interests for the alpine areas are anticipated.

Recreational use in the Mount Moriah area is primarily restricted to hiking and associated wilderness activities. Even with wilderness designation, trail use appeared fairly light, possibly because of the remoteness of the area. Entries in the summit register were moderate and only a few camps, all in subalpine settings, were noted. The Snake Range has a healthy bighorn sheep herd, which is hunted, although little evidence of hunting camps were seen in the area. Packers occasionally guide in hunting parties. Little conflict from recreational interests is expected. Management of the area for its wilderness values is compatible with RNA status.

Primary Features

The Mount Moriah area harbors subalpine and alpine plant communities in good to excellent condition. The following descriptions are tentative because they are based on one short field visit and meager plant collecting for purposes of identifying the dominants.

The lower elevations of Mount Moriah harbor open stands of *Pinus longaeva* and *Picea engelmannii* (Eyre, 1980). Understory is sparce but includes *Sitanion hystrix, Poa suksdorfii,* and *Ribes montigenum.* Individuals of Engelmann spruce and bristlecone pine become stunted, recumbent, or flagged at treelimit (Photos 2 and 5).

The Table holds a vast dry subalpine steppe community in good condition under the current grazing regime. The steppe is dominated by graminoids associated with an abundance of broad-leaved herbaceous perennials. Graminoids include *Carex elynoides, Carex scirpoidea* var. *pseudoscirpoidea, Festuca idahoensis, Poa suksdorfii,* and *Calamagrostis purpurascens.* The community is open and with a rocky soil surface (Photos 2-4). Expanses of subalpine steppe of this size and quality are rare for the Great Basin and are in need of protection and representation within the RNA network.

A vast alpine region extends above the subalpine trees and grassland on The Table. These highest slopes are occupied by an open alpine talus and scree community dominated by rock with low, scattered, plant cover. Some areas are slightly more protected and with greater moisture and this is reflected in slightly greater plant cover and robustness of individuals. Regardless, the alpine plants are in an extreme environment on Mount Moriah. Some alpine plant taxa present in the Mount Moriah alpine include *Phlox caespitosa* ssp. *pulvinata, Cymopterus humboldtensis, Crepis nana, Festuca brachyphylla, Astragalus kentrophyta, Geum rossii,* and *Aquilegia scopulorum* (Photo 6).

No federally listed or candidate species for threatened or endangered status are currently known to occur within the Mount Moriah area (Nevada Natural Heritage Program, personal communication). However, two category 2 candidates occur nearby. *Salmo clarki utah* occurs just south in Hendrys Creek, just southeast in Hampton Creek, and just northwest in Smith Creek. It is not likely to occur within the Mount Moriah area because of the lack of subalpine habitat for the fish. *Silene nachlingerae*, occurs adjacent to the area about 1+ km (0.7 mi) west in Big Canyon. Small amounts of suitable habitat for the rare plant was encountered within the area, but the species was not seen. In addition, three rare species that are now known to be more common than once believed occur nearby: *Astragalus lentiginosus* var. *latus, Draba pennellii,* and *Penstemon moriahensis.* Habitat for these rarities exist in the Mount Moriah area.

Size and Boundary

A recommended ecological boundary for the proposed Mount Moriah Research Natural Area is given in Map 2. This boundary primarily follows contour lines which define the subalpine and alpine communities in the immediate area around The Table and Mount Moriah. The Table area is defined by the 3,230 and 3,292 m (10,600 and 10,800 ft) contours, while the Mount Moriah area is defined by the 3,414 m (11,200 ft) contour. This area comprises the headwater region of the numerous streams flowing in all directions down the slopes of the northern Snake Range. Any subsequent legal boundary used to more conveniently describe and manage the area should encompass the entire recommended ecological boundary.

The size of the recommended area is approximately 730 ha (1,800 ac). This is about average size for already established RNAs. The lack of diversity of plant communities is attributed to the large alpine area.

Suitability for Research Natural Area Candidacy

The Mount Moriah area would make an outstanding RNA for alpine target cells. The area harbors several subalpine and alpine plant communities in good to excellent condition which are in need of receiving representation in the RNA network. The plant communities are floristically dissimmilar and structurally different compared to similar subalpine and alpine communities already represented.

The area meets the minimum size requirement. The Table is in good condition and shortly would assume excellent condition in the absence of grazing. The alpine lands are in excellent condition and with little evidence of human-caused disturbances.

For the alpine lands, there appear to be no serious conflicts with other uses in the area. Mineral potential and forage production are low. The light recreational use that the area receives would not be detrimental to research and educational activities.

For the subalpine lands, only grazing appears to be in conflict with RNA designation. Forage production on The Table is good, however, it is less than lower elevation slopes. Restriction of grazing to lower elevations could be done, but not without fencing. Exclusion of livestock on The Table probably would be supported by the recreational users of the wilderness. Finally, district-level staff were essentially supportive of the special designation, although the grazing concern was discussed.

Recommendations

The Mount Moriah area is well-qualified for the RNA designation. Consequently, I recommend that the Intermountain Station/Region 4 RNA Committee formally nominate the Mount Moriah candidate Research Natural Area to the Regional Forester.

In addition, the INT/R4 RNA Committee should plan for the timely completion of an establishment record for the candidate RNA. Field work done for the establishment record should be an in-depth survey to more fully describe and classify the plant communities present. This field work should also determine if any federally listed or candidate species for threatened or endangered status occur within the Mount Moriah area.

Finally, I recommend that this reconnaissance report be made available to the Ely Ranger District so that they may use its contents to complete an environmental assessment of the RNA designation action. This is a necessary step to comply with the National Environmental Policy Act and timely action now will prevent delays in the establishment process later.

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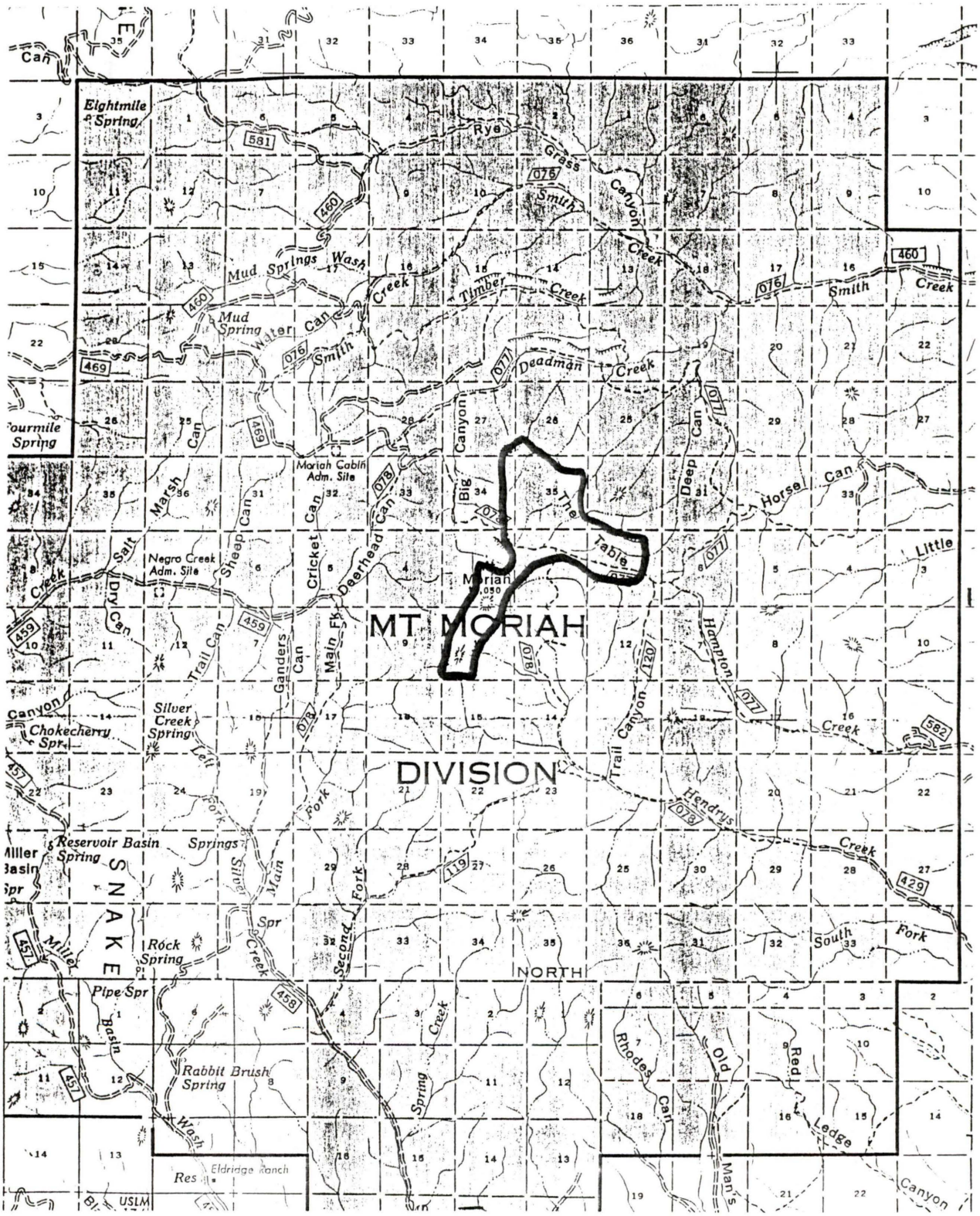
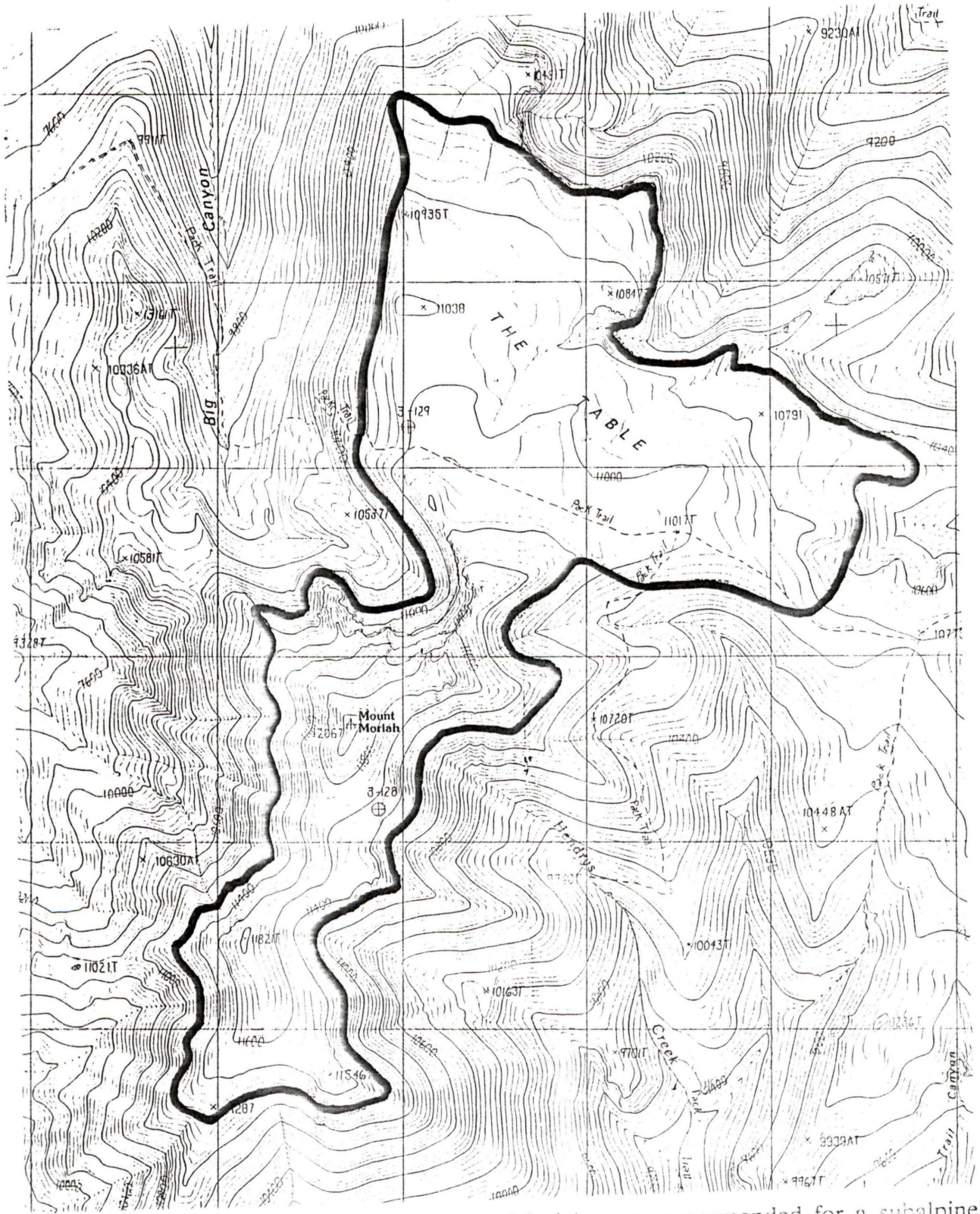


Map 1. General location of the Mount Moriah area (USDA Ely Ranger District at 1/2 inch/mile).



Map 2. Proposed boundary of the Mount Moriah area recommended for a subalpine and alpine Research Natural Area (USGS 1:24,000 Mount Moriah reduced 78 percent).

Photo 1. Trailhead access west of the Mount Moriah area at 3,000 m (9,900 ft). View is SE up Big Canyon with alpine lands of the area in the background.

Photo 2. View SW from The Table at 3,370 m (11,050 ft) with the alpine lands of Mount Moriah in the background (Mount Moriah is actually hidden by the summit of Peak 11,920). Foreground is *Carex elynoides-Festuca idahoensis* dry steppe, while mid-ground is open forest community with Engelmann spruce and bristlecone pine.

Photo 3. Close-up of the dry subalpine steppe dominating The Table. Graminoids dominate the steppe with species such as *Carex elynoides, Carex scirpoidea* var. *pseudoscirpoidea,* and *Festuca idahoensis*.

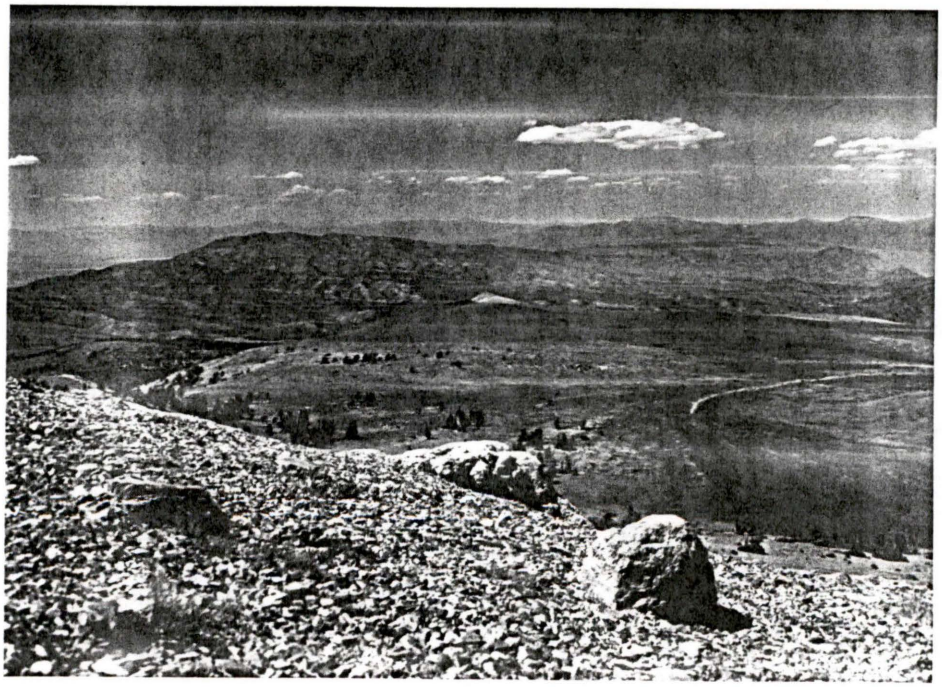


Photo 4. View N of The Table from the alpine lands north of Mount Moriah. Margins of The Table are clothed in open bristlecone pine stands. On The Table, moister areas have greater cover by graminoids, while drier areas have sparse plant cover with greater rock cover.

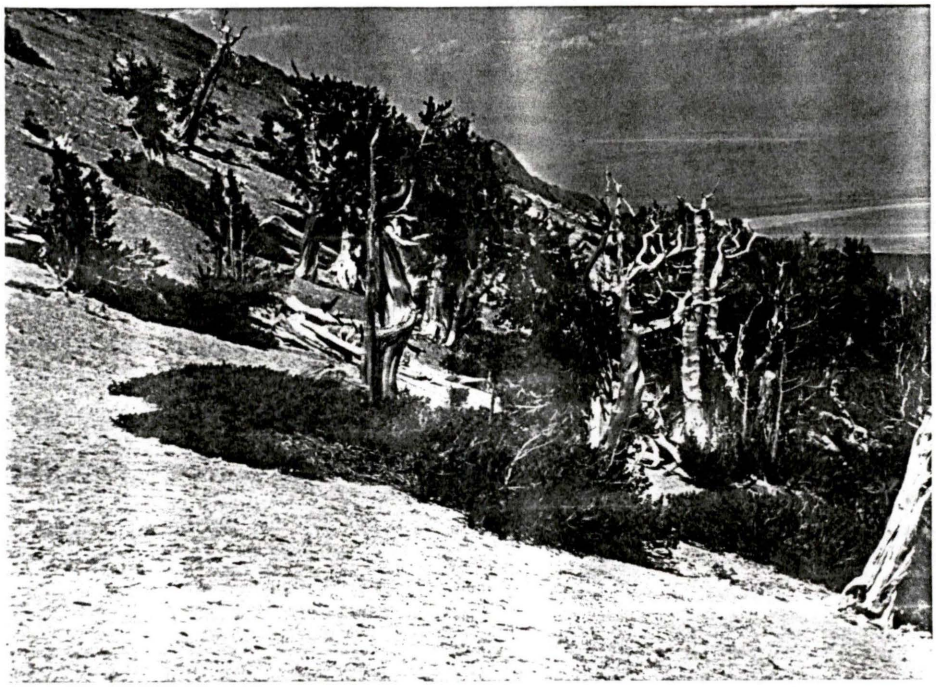


Photo 5. East-facing slopes of the headwaters of Hendrys Creek at 3,500 m (11,500 ft). Near treelimit, the bristlecone pine is flagged and the Engelmann spruce shows recumbent growth. Foreground is alpine talus and scree community.

Photo 6. Close-up view of alpine talus and scree community. Herbaceous perennials featured here are *Aquilegia scopulorum* and *Zigadenus elegans.*